This draft, January 2003, prepared by AU-63, has not been approved and is subject to modification.
Project No. TRNG-0034

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NOT MEASUREMENT SENSITIVE

DOE–STD–XXXX–2003
PROPOSED

DOE STANDARD

SENIOR TECHNICAL SAFETY MANAGER QUALIFICATION STANDARD

DOE Defense Nuclear Facilities Technical Personnel

U.S. Department of Energy
Washington, D.C. 20585

AREA TRNG

DOE F 1325.8
(3/02)

United States Government **Department of Energy**

Oak Ridge Operations Office

memorandum

DATE: January 16, 2003

REPLY TO ATTN OF: AU-63:Kelly

SUBJECT: **PROPOSED REVISION TO DOE-STD-XXXX-2003, SENIOR TECHNICAL SAFETY MANAGER QUALIFICATION STANDARD, PROJECT NUMBER TRNG-0034**

TO: Distribution

The referenced technical standard has been released for your review and comment. The technical standard can be found at the Technical Standards Program Web Site at http://tis.eh.doe.gov/techstds/. After comments have been resolved, the document will be approved as a Department of Energy (DOE) standard and listed in the DOE Standards Index, DOE-TSL-1.

Please review the document and provide your comments to the preparer, Mr. Larry Kelly, DOE Oak Ridge Operations Office, by the comment due date listed for this project at the above Web Site. Your comments must be designated as either essential or suggested and proposed resolutions to those comments provided. Essential comments are those which, if not addressed, would make the document technically unacceptable to your organization and must be supported by detailed rationale. All comments must be in the form of word-for-word changes to the draft document.

Responses from DOE Area Offices, Laboratories, and Management and Operating Contractors should be returned through the appropriate DOE management or organization channels in sufficient time to permit consolidation at the Operations Office and subsequent transmittal to the preparer before the due date. Comments received after that date will be held for the next revision, unless it is possible to address them without affecting the timely approval of the document. Please contact Mr. Larry Kelly if you have any questions on this DOE Technical Standards project. He can be reached at 865-576-1829, E-mail kellylc@oro.doe.gov.

Robert W. Poe
Assistant Manager
for Environment, Safety, Health,
and Emergency Management

Attachment

APPROVAL

The Federal Technical Capability Panel consists of senior Department of Energy managers responsible for overseeing the Federal Technical Capability Program. This Panel is responsible for reviewing and approving the Qualification Standard for Department-wide application. Approval of this Qualification Standard by the Federal Technical Capability Panel is indicated by signature below.

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Chairman
Federal Technical Capability Panel

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ACKNOWLEDGMENT

The Oak Ridge Operations Office is the Sponsor for the Senior Technical Safety Manager Qualification Standard. The Sponsor is responsible for coordinating the development and/or review of the Functional Area Qualification Standard by subject matter experts to ensure that the technical content of the standard is accurate and adequate for Department-wide application for those involved in environmental compliance work. The Sponsor, in coordination with the Federal Technical Capability Panel, is also responsible for ensuring that the Functional Area Qualification Standard is maintained current.

The following subject matter experts participated in the development and/or review of this Qualification Standard:

Larry C. Kelly	Oak Ridge Operations Office (Team Leader)
Joe Arango	Office of Environmental Management
Xavier Ascanio	Office of Defense Programs
Ed Blackwood	Office of Environment, Safety, and Health
Ray Schwartz	Office of Science

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U.S. DEPARTMENT OF ENERGY
SENIOR TECHNICAL SAFETY MANAGER
QUALIFICATION STANDARD

IMPLEMENTATION OF THIS REVISION

The Panel has determined that implementation of this revision to the Senior Technical Safety Manager (STSM) Qualification Standard shall be as follows:

STSMs who have completed all of the requirements of the previous revision to this Standard should review the changes in this revision for consideration as part of their continuing training program.

STSMs who are still in the qualification process shall review this revision for changes. Competencies in the previous revision to the standard that have already been satisfied do not require additional action, even if they were modified in this version. New or revised competencies in this version that had not been previously satisfied shall replace the competencies in the previous version.

**The following significant changes have been made in this revision to the STSM Qualification Standard:

- The supporting knowledge and skills have been restated in terms of enablers or benchmarks rather than general guidance used to fulfill to the intent of the competency. The rationale for this change is to strengthen, enhance, and broaden the STSM knowledge and skill base.
- The safety basis and Integrated Safety Management System (ISMS) competencies have been expanded. The rationale for this change is to increase the STSM's attention to this important responsibility and to improve the Department of Energy's (DOE's) overall safety capabilities.

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U.S. DEPARTMENT OF ENERGY
SENIOR TECHNICAL SAFETY MANAGER
QUALIFICATION STANDARD

FUNCTIONAL AREA

Senior Technical Safety Manager

A Senior Technical Safety Manager (STSM) is that person who is usually at the GS/GM-15 or Senior Executive Service level and assigned the direct responsibility to manage technical programs, resources, and/or Department personnel who provide assistance, direction, guidance, oversight, or evaluation of contractor technical activities impacting the safe operation of defense nuclear facilities.

PURPOSE

The STSM Functional Area Qualification Standard establishes common functional area competency requirements for all Department of Energy (DOE) STSMs who provide assistance, direction, guidance, oversight, or evaluation of contractor technical activities impacting the safe operation of defense nuclear facilities.

Satisfactory and documented attainment of the competency requirements contained in this Standard ensures that STSMs possess the minimum requisite competence to fulfill their functional area duties and responsibilities. Additionally, Office/Facility-Specific Qualification Standards supplement the Functional Area Qualification Standards and establish unique operational competency requirements at the Headquarters or Field element, site, or facility level.

It should be noted that the competency elements of management and leadership, general technical knowledge, regulations, administrative capability and assessment and oversight are all embodied in the competencies listed in this Standard. All of the factors above have a bearing on safety. Although the focus of this Standard is technical competence, elements such as good communication, recognized credibility, the ability to listen and process information and the ability to guide an effort to get it right the first time are recognized as important aspects of safety.

The Department's Federal Technical Capability Program Policy, issued by the Secretary in December 1998, commits the Department to continuously strive for technical excellence. The Technical Qualification Program (TQP), along with the supporting Functional Area Qualification Standards, complements the personnel processes that support the Department's drive for technical excellence. In support of this goal, the competency requirements defined in this Functional Area Qualification Standards should be aligned with and integrated into the recruitment and staffing processes for STSM positions. This Functional Area Qualification Standard should also form, in part, the primary basis for developing vacancy announcements, qualification requirements, interview questions, and other criteria associated with the recruitment, selection, and internal placement of STSMs.

The Office of Personnel Management (OPM) minimum qualifications standards will be greatly enhanced by application of appropriate materials from the Functional Area Qualification Standards. The Functional Area Qualification Standards are not intended to replace the OPM

Qualifications Standards nor other Departmental personnel standards, rules, plans, or processes. The primary purpose of the TQP is to ensure that employees have the requisite technical competency to support the mission of the Department. The TQP forms the basis for the development and assignment of DOE personnel responsible for ensuring the safe operation of defense nuclear facilities.

APPLICABILITY

This Standard applies to all Department of Energy STSMs as identified by their respective Operations/Field Office Manager or Program Secretarial Officer (PSO). Personnel designated as STSMs are participants in the TQP and are required to attain the competency requirements of this STSM Functional Area Qualification Standard, the General Technical Base Qualification Standard and Office/Facility-Specific Qualification Standards as appropriate.

IMPLEMENTATION REQUIREMENTS

The competency statements within this Standard are considered to be requirements for STSMs. Each of the competency statements is further explained by a listing of supporting knowledge and/or skill statements. While the supporting knowledge and/or skill statements are not requirements, they are suggested enablers or benchmarks to be used as a measure to judge the attainment of the competency(ies).

The competencies identify a familiarity level, a working level, or an expert level of knowledge; or they require the individual to demonstrate the ability to perform a task or activity. Within the scope of this Standard these levels are defined as follows:

> **Familiarity level** is defined as basic knowledge of or exposure to the subject or process adequate to discuss the subject or process with individuals of greater knowledge.
>
> **Working level** is defined as the knowledge required to monitor and assess operations/activities, to apply standards of acceptable performance, and to reference appropriate materials and/or expert advice as required to ensure the safety of Departmental activities.
>
> **Expert level** is defined as a comprehensive, intensive knowledge of the subject or process sufficient to provide advice in the absence of procedural guidance.
>
> **Demonstrate the ability** is defined as the actual performance of a task or activity in accordance with policy, procedures, guidelines, and/or accepted industry or Department practices.

Headquarters and Field elements shall establish a program and process to ensure that STSMs possess the competency requirements contained in this Standard. Documentation of the completion of the requirements of this Standard shall be included in the employee's training and qualification record.

Equivalencies may be granted for individual competencies based upon an objective evaluation of the employee's prior education, experience, and/or training. Equivalencies shall be requested by the individual's immediate supervisor, and approved one level above the individual's immediate supervisor. If the immediate supervisor is at the Operations Manager or Deputy Assistant Secretary level or above, then he or she shall be the final approval authority. The supporting knowledge and/or skill statements, while not requirements, should be considered before granting equivalency. If necessary, immediate supervisors should request the assistance of subject matter experts to assist in evaluating the adequacy of equivalencies prior to submitting a request.

Training shall be provided to employees in the TQP who do not meet the competencies contained in the qualification standard. Departmental training will be based upon appropriate supporting knowledge and/or skill statements similar to the ones listed for each of the competency statements. Headquarters and Field elements should use the supporting knowledge and/or skill statements as a basis for evaluating the content of any training courses used to provide individuals with the requisite knowledge and/or skill required to meet the qualification standard competency statements.

EVALUATION REQUIREMENTS

Attainment of the competencies listed in this Qualification Standard shall be documented by a qualifying official or the STSM's immediate supervisor using any of the following methods:

- Documented evaluation of equivalencies
- Written examination
- Documented oral evaluation
- Documented observation of performance

CONTINUING EDUCATION, TRAINING AND PROFICIENCY

STSMs shall participate in continuing training as necessary to improve performance and ensure that they are up-to-date on changing technology and new requirements related to the STSM Functional Area. Sources for continuing training activities may include internal or external Departmental sources such as:

- Department of Energy
- Other government agencies
- Outside vendors
- Educational institutions

A description of suggested learning and proficiency activities for the continuing education and training of STSMs is included in Appendix A of this document.
Continuing training activities for individual offices should be identified annually by the cognizant Federal Technical Capabilities Panel Agent (refer to DOE M 426.1-1, Section IV.4.b, for a description of the Panel Agent's responsibilities). Continuing training activities for individuals should be identified by their immediate supervisor.

DUTIES AND RESPONSIBILITIES

The following are the typical duties and responsibilities expected of defense nuclear facility technical personnel assigned to the STSM Functional Area:

A. Integrate safety into management and work practices to accomplish mission objectives, while ensuring worker and public health and safety, and the protection of the environment.

B. Comply with Departmental Directives, Federal and State Regulations and other binding agreements.

C. Direct and provide support, and allocate resources to meet the Department's mission safely.

D. Manage people, implement policies and procedures, perform technical reviews, and provide technical direction and feedback to contractor and federal employees.

E. Integrate monitoring and assessment activities and provide feedback to the contractors.

F. Recruit, select, train and qualify employees to establish and maintain technical competence.

G. Effectively communicate technical safety expectations and issues.

Position-specific duties and responsibilities for a STSM are contained in their Office/Facility-Specific Qualification Standard or Position Description.

BACKGROUND AND EXPERIENCE

The OPM's Qualification Standards Handbook establishes minimum education, training, experience, or other relevant requirements applicable to a particular occupational series/grade level, as well as alternatives to meeting specified requirements.

1. Education:

   An STSM shall possess a scientific or engineering degree with a major in an academic area that supports the functional responsibilities of the position.
   (Exceptions to this requirement should be considered only in rare circumstances, and then in accordance with OPM qualification standards). An advanced technical degree is considered to be an advantage. Additionally, professional credentials (such as Professional Engineer) and industry certifications are desirable.

2. Experience:

   STSMs should show a demonstrated capability to manage technical issues at the level the position requires. For example, for a management position that is narrow in scope with significant detail work, the STSM shall have a level of expertise close to that of a subject matter expert. For a management position that is very broad in scope, STSMs shall possess an interdisciplinary background, and shall also have demonstrated technical competence in a specific area at a previous point in their careers. For supervisory or managerial positions, STSMs should also have demonstrated leadership skills.

There may be situations where the incumbent in an identified senior technical safety management position does not meet the education and experience requirements as discussed above. In these cases, Management has various options to address or compensate for this situation. In developing and implementing compensatory measures, it should be recognized that Management has the responsibility to create a situation where there is an unbroken chain of fully qualified STSMs in positions of authority. Examples of various options for compensatory measures can be found in the Federal Technical Capability Manual.

REQUIRED TECHNICAL COMPETENCIES

Each of the competency statements defines the level of expected knowledge and/or skill that an individual must possess to meet the intent of this Standard. The supporting knowledge and/or skill statements, which further describe the intent of the competency statements are not requirements; however, they are suggested enablers or benchmarks to be used to judge the attainment of the competency(ies).

Note: (1) ***When regulations or DOE directives are referenced in the Qualification Standard, the most recent revision should be used.***

1. An STSM shall demonstrate the ability to effectively communicate technical safety expectations and issues.

Supporting Knowledge and/or Skills:

a. Demonstrate the ability to represent and speak for the organizational unit on safety management issues (e.g., presenting, explaining, selling, defending, and negotiating) to those within and outside the Department.

b. Discuss the means of developing and/or enhancing alliances with external groups (e.g., other agencies and governments, Congress, and clientele groups).

c. Discuss the benefits to safety management of promoting effective communication and exchange across the Department including:
   - Focused sharing of information
   - Interaction and resolution of issues
   - Use of lessons learned

d. Describe how the following expectations are effectively communicated within an organization to build a continuous improvement culture:
   - Development and exploration of new ideas are encouraged
   - Process quality and safety responsibilities within the organization are understood
   - Individuals know how their work contributes to safety objectives and strategic goals
   - Unsafe practices, nonconforming items and potential areas for improvement are readily identified
   - Enhanced product and process safety and reliability are emphasized

2. An STSM shall have a familiarity level knowledge of the employee concerns program as it relates to personnel and facility safety.

Supporting Knowledge and/or Skills:

a. Describe the purpose, scope, and importance of the Department's Employee Concerns Program.

b. Describe the responsibilities of the following in implementing DOE O 442.1A, Department of Energy Employee Concerns Program:
   - Headquarters and Field Office Managers
   - Employee Concerns Manager

c. Describe how employee concerns are reported, processed and documented as stated in DOE O 442.1A and the DOE G 442.1-1, Department of Energy Employee Concerns Program Guide.

d. Describe the criteria for designating and processing occupational health and safety concerns.

3. An STSM shall have a working level knowledge of the policies and procedures used to recruit, select, train, and qualify employees to establish and maintain technical competency.

Supporting Knowledge and/or Skills:

a. Discuss planning, recruitment, and selection processes that can be used to acquire a technically competent workforce with the necessary knowledge, skills, abilities, and/or potential to accomplish the goals of the organization.

b. Discuss the parameters of the Excepted Service Authority(ies), the circumstances which would dictate use of an Excepted Service Authority, and the process and procedures for using an Excepted Service Authority to recruit and hire.

c. Discuss ways to motivate, reward, recognize, and retain excellent employees or recognize a major contribution to the organization using local rewards programs or the programs described in DOE G 426.1-1, Recruiting, Hiring, and Retaining High-Quality Technical Staff – A Manager's Guide to Administrative Flexibilities.

d. Discuss the roles and responsibilities of the Federal Technical Capability Panel and Panel Agents in the recruitment, selection, training, and retention of technical personnel.

e. Describe methods used to assess an employee's unique developmental needs and why providing developmental opportunities to employees could contribute to the achievement of organizational goals.

f. Describe in general the training and qualification requirements for contractors specified in DOE O 5480.20A, Personnel Selection, Qualification, and Training Requirements for DOE Nuclear Facilities.

g. Describe the Federal Technical Capability Program as defined in DOE M 426.1-1, Federal Technical Capability Manual, and discuss that application of the program in your organization.

h. Describe the following three types of mentoring relationships and discuss the types of goals that an organizationally sponsored mentoring program is intended to meet:
- Supervisor
- Informal
- Structured-Facilitated

4. An STSM shall have a working level knowledge of the roles and responsibilities for the ISMS and the Department's philosophy and approach to implementing Integrated Safety Management (ISM).

Supporting Knowledge and/or Skills:

a. Describe the overall objective of the Department-wide DOE M 411.1-1B, Safety Management Functions, Responsibilities, and Authorities Manual and the similar lower-tier organization-level manuals developed by Headquarters Offices and Field Elements.

b. Give an example of a circumstance that might make it necessary or reasonable to deviate from the responsibilities and authorities identified in the Functions, Responsibilities, and Authorities Manual and describe the exemption process in DOE M 251.1-1A, Directives System Manual.

c. Describe how the seven Guiding Principles in the ISM Policy are used to implement an ISM philosophy in Headquarters and Field Element work activities.

d. Describe the five core safety management functions in the ISM Policy and discuss how they provide the necessary structure for specific and key Headquarters and Field Element work activities work activities.

e. Identify and discuss the specific application of existing Department programs and initiatives that have led to successful implementation of ISM such as:
- Standards/Requirements Identification Documents (S/RIDs) and Work Smart Standards
- Contract reform and performance-based contracting (e.g., applicable DEAR clauses)
- Research and Development Laboratory activities related to safety management
- Operational Readiness Reviews (ORR)
- Readiness Assessments (RA)
- Nuclear Explosive Safety and Surety Program
- Enhanced work planning (from DOE G 450.3-2, Attributes of Effective Implementation)
- Voluntary Protection Program
- ISO 14000

f. Explain the basis upon which the safety management functions could differ from facility to facility, and the basis to be used for applying ISM on a graded approach.

g. Discuss the underlying safety management issues affecting the design, construction, operation, and maintenance of the Department's facilities, activities, and assets.

h. Identify and lead the implementation of a significant site or Headquarters work activity that demonstrates the application of ISM principles.

5. An STSM shall have a working level knowledge of the Department's various mechanisms for addressing technical staffing gaps and peak workload.

Supporting Knowledge and/or Skills:

a. Discuss the benefits to the Department and individual organizational units which could be realized through use of the following:
   - EH Technical Assistance
   - Mentoring Program
   - Special assignment/detail

b. Describe the process to obtain technical assistance and the types of assets available.

c. Describe the process for enrolling or participating in the Department's technical assistance units.

d. Describe the process for obtaining the technical assistance of an individual from another office on a temporary or detail basis.

e. Describe other Departmental capabilities/resources that could be utilized to solve short-term technical safety issues.

6. An STSM shall have a working level knowledge of the general content of the safety basis requirements, as described in 10 CFR 830, Subpart B, and the related DOE orders, standards, and guides.

Supporting Knowledge and/or Skills:
(***Note: the following replaces the existing section.)

a. Discuss the purpose and objectives of the nuclear facility safety basis program.

b. Discuss each of the following nuclear safety orders, standards, guides, and handbooks:
   - DOE O 420.1A, Facility Safety
   - DOE G 421.1-2, Implementation Guide For Use in Developing Documented Safety Analyses to Meet Subpart B of 10 CFR 830
   - DOE G 423.1-1, Implementation Guide For Use In Developing Technical Safety Requirements

- DOE G 424.1-1, Implementation Guide For Use In Addressing Unreviewed Safety Question Requirements
- DOE O 425.1B, Startup and Restart of Nuclear Facilities
- DOE O 460.1, Packaging and Transportation Safety
- DOE G 460.1-1, Implementation Guide for Use with DOE O 460.1A, Packaging and Transportation Safety
- DOE-STD-1020-2002, Natural Phenomena Hazards Design and Evaluation Criteria for Department of Energy Facilities
- DOE-STD-1021-93, Natural Phenomena Hazards Performance Categorization Guidelines for Structures, Systems, and Components
- DOE-STD-1022-94, Natural Phenomena Hazards Characterization Criteria
- DOE-STD-1027-92, Hazard Categorization and Accident Analysis Techniques for Compliance with DOE Order 5480.23, Nuclear Safety Analysis Reports
- DOE-STD-1083-95, Requesting and Granting Exemptions to Nuclear Safety Rules
- DOE-STD-1104-96, Review and Approval of Nonreactor Nuclear Facility Safety Analysis Reports
- DOE-STD-1120-98, Integration of Environment, Safety, and Health into Facility Disposition Activities, Volumes 1 and 2
- DOE-STD-3009-94, Preparation Guide for U.S. Department of Energy Nonreactor Nuclear Safety Analysis Reports
- DOE-HDBK-3010-94, Airborne Release Fractions/Rates and Respirable Fractions for Nonreactor Nuclear Facilities
- DOE-STD-3011-94, Guidance for Preparation of DOE 5480.22 (TSR) and DOE 5480.23 (SAR) Implementation Plans
- DOE-EM-STD-5502-94, Hazard Baseline Documentation.

c. Discuss the development and maintenance of the requirements described in 10 CFR 830, Subpart B, “Safety Basis Requirements”, for DOE and contractors authorized to operate nuclear facilities.

d. Discuss the following items:
   - Authorization Agreements
   - Authorization Basis
   - Safety Basis
   - Unreviewed Safety Question (USQ)
   - Safety Evaluation Report
   - Documented Safety Analysis
   - Safe Harbor Methodologies
   - Preliminary Documented Safety Analysis
   - Technical Safety Requirements
   - Potential Inadequacies of the Safety Analysis (PISA)

e. Discuss the hazard categorization levels, non-nuclear hazard classification levels, and the process utilized to determine the facility hazard category or classification.

f. Discuss the reasons for performing a USQ determination.

g. Discuss the responsibilities of DOE and contractors authorized to operate nuclear facilities for the performance of USQ evaluations.

h. Discuss the actions to be taken by a contractor and DOE upon identifying information that indicates a potential inadequacy of the safety analysis.

i. Discuss the actions to be taken by a contractor and DOE if it is determined that a USQ exists.

j. Describe the safety basis documents for the facilities in the STSM's organization and how they are prepared, reviewed, approved, and updated:
   - The safety basis documents for the facilities under the purview of the STSM's organization.
   - The scope of operations, hazards, postulated accidents, and controls/requirements for the assigned facilities as documented in the safety basis documents.
   - The safety basis documentation preparation, revision, and update processes and the associated responsibilities of the contractor and DOE.
   - The review and approval processes for safety basis documents and the associated responsibilities of the contractor and DOE.
   - The level of approval authority as it relates to Facility Hazard Categorization and Classification and safety basis documents.
   - The steps in the preparation, review, and approval of a safety evaluation report.
   - The process for flow down of controls and requirements and the derived operating procedures, processes, and programs.

k. Discuss the purpose, content, and philosophy, as appropriate to the position, of the following safety management standards for nuclear explosive safety:
   - DOE O 452.1B, Nuclear Explosive and Weapons Surety Program
   - DOE O 452.2B, Safety of Nuclear Explosive Operations
   - DOE O 461.1, Packaging and Transfer or Transportation of Materials of National Security Interest
   - DOE O 5610.13, Joint Department of Energy/Department of Defense Nuclear Weapon System Safety, Security, and Control Activities
   - DOE O 5660.1B, Management of Nuclear Materials

l. Describe the process for determining the applicable set of standards for operation such as:
   - Standards/Requirements Identification Documents (S/RIDs)
   - Work Smart Standards
   - Directives flowdown or compliance

m. Discuss the application and implementation of the standards listed above in the development of site and facility safety management documents.

n. Identify the conditions and procedures used to maintain and modify safety documents.

o. Discuss the general types of standards established by industry standards organizations such as the following:
- American Nuclear Society (ANS)
- American National Standards Institute (ANSI)
- American Society of Mechanical Engineers (ASME)
- American Society for Testing and Materials (ASTM)
- International Organization for Standardization (ISO)
- National Fire Protection Association (NFPA)

p. Describe the relationship between Department of Energy Directives and industry and military standards.

7. An STSM shall have a working level knowledge of the application of environmental standards, laws, and regulations.

Supporting Knowledge and/or Skills:

a. Discuss the interrelationship between the following:
- Environmental law
- Statutory construction
- The United States Code
- The Code of Federal Regulations
- State Laws and Regulations

b. Describe the organization, mission, and enforcement authorities of the Environmental Protection Agency (EPA).

c. Discuss the applicability and timing for National Environmental Policy Act (NEPA) documentation and the role of the Department and contractor in implementation.

d. Discuss the responsibilities of the federal staff for oversight of the contractor organization for environmental compliance.

e. Discuss the enforcement of environmental statutes under civil and criminal authorities.

f. Discuss ISO 14000, Environmental Management Systems Standards, and their relevance to Department of Energy and contractor performance.

8. An STSM shall have a working level knowledge of the application of worker protection standards.

Supporting Knowledge and/or Skills:

a. Discuss the interrelationship between the following:
- Occupational safety and health laws
- Statutory construction
- The United States Code
- The Code of Federal Regulations
- State Laws and Regulations

b. Describe the organization, mission and enforcement authorities of the Occupational Safety and Health Administration (OSHA).
c. Discuss the enforcement of occupational safety and health statutes under civil and criminal statutes.

d. Describe the role(s) the contractor plays in implementing occupational safety and health regulations.

9. An STSM shall have a working level knowledge of the Department's Emergency Management resources including emergency plans, external agency involvements, interagency relationships, and the command and control function during an emergency.

Supporting Knowledge and/or Skills:

a. Discuss the Department's three-tiered organizational approach to managing Operational Emergencies.

b. Discuss the general roles and responsibilities of the Departmental elements for management of the Department's Emergency Management System as defined in DOE O 151.1A, Comprehensive Emergency Management System.

c. Define "Operational Emergencies" and the circumstances to which they apply as defined in DOE O 151.1A, Comprehensive Emergency Management System.

d. Discuss the concept of Emergency Public Information and the different roles of the Department's Public Relations Office and the Joint Information Center in disseminating information in an emergency.

e. Discuss the concept and define the components of the Incident Command System in the context of on-site and off-site emergency response.

f. Discuss the involvement of external agencies in the Department's emergency management system.

g. Describe the contents, the requirements for, and where each of the following types of emergency plans can be located on-site:
- Site Emergency Plan
- Facility Emergency Plan
- Building Emergency Plan
- Security Emergency Plan
- Fire Prevention/ Suppression Plan
- Worker Safety Plan(s)

10. An STSM shall have working level knowledge of conduct of operations.

Supporting Knowledge and/or Skills:

a. Describe the reason for implementing conduct of operations at Department of Energy facilities.

b. Discuss the requirements for implementing conduct of operations at DOE facilities and the associated impact on safety and efficiency of operations.

c. Discuss the purpose and describe the roles and responsibilities of the STSM in implementing DOE O 5480.19, Conduct of Operations Requirements for DOE Facilities.

d. Discuss the concept of "graded approach" and how it applies to the implementation of conduct of operations.

e. For each of the 18 chapters in Attachment I to DOE O 5480.19 describe in detail how each activity contributes to an effective and safe operational environment.

f. Describe the types of operations where formal conduct of operations apply.

g. Discuss how the self-assessment process is applied to ensure safe operations.

h. Discuss the responsibilities, authorities, and implementation requirements for DOE O 430.1A, Life Cycle Asset Management, at defense nuclear facilities.

11. An STSM shall have a working level knowledge of waste management principles and practices.

Supporting Knowledge and/or Skills:

a. Define the following terms:
- Low level waste
- High level waste
- Transuranic waste
- Mixed waste

b. Discuss the Department's policy regarding the handling and management of waste as described in DOE O 435.1, Radioactive Waste Management.

c. Discuss the Department's performance objectives and performance assessment requirements as outlined in DOE O 435.1.

d. Discuss the Department's policies on waste management including:
- Generation reduction
- Segregation
- Minimization
- Pollution prevention
- Disposal

e. Discuss how the following Acts apply to and impact the Department's waste management programs:
- Federal Facilities Compliance Act (FFCA)
- Pollution Prevention Act of 1990 (PPA)
- Superfund Amendment Reauthorization Act (SARA)

f. Discuss the general requirements of the Resource Conservation and Recovery Act (RCRA) as it applies to hazardous and mixed waste.

g. Discuss the process for determining whether or not waste is classified as hazardous.

h. Describe the general requirements and issues associated with the transportation and packaging of radioactive wastes.

12. An STSM shall have a working level knowledge of maintenance management as it relates to safety.

Supporting Knowledge and/or Skills:

a. Using DOE O 433.1, Maintenance Management Program for DOE Nuclear Facilities, explain the following:
- The Department of Energy's role in the oversight of contractor maintenance operations
- The intent of maintenance management programs
- The Department's policy and objectives for maintenance management
- The responsibilities and authorities for maintenance management programs

b. Discuss the requirements for the control and integration of Management & Operating (M&O) contractor and subcontractor personnel in maintenance activities.

c. Discuss the graded approach process by which Department line management determines an appropriate level of coverage by facility maintenance management personnel.

d. Discuss how maintenance activities interface with the following as it relates to safety:
- Conduct of operations
- Quality assurance
- Configuration management
- Safety structures, systems and components
- Authorization Basis
- Counterfeit/suspect items

13. An STSM shall have a working level knowledge of formal configuration management as it relates to safety.

Supporting Knowledge and/or Skills:

a. Discuss the roles and responsibilities of the STSM related to implementing configuration management programs.

b. Discuss the concept of configuration management and its importance in ensuring operational safety.

c. For the elements identified above, describe the possible effects on safe operations if they are ineffectively implemented.

d. Describe a typical configuration management process.

e. Given DOE-STD-1073-93, Guide for Configuration Management Programs, discuss the system engineer concept as it applies to oversight of safety systems. Specifically address the areas of configuration management, assessment of system status and performance, and technical support for operation and maintenance activities or for

Documented Safety Analysis reviews.

f. Discuss each of the following elements of configuration management and how they contribute to safety and an effective configuration management program.
   - Program Management
   - Document Control
   - Change Control
   - Graded Approach
   - Design Requirements
   - Assessments

g. Discuss approved/recommended compensatory actions where inadequate configuration management exists and work is ongoing or to be initiated.

14. An STSM shall have a working level knowledge of safeguards and security as it relates to safety practices.

Supporting Knowledge and/or Skills

a. Define the terms “safeguards” and “security” as they apply to the Department of Energy safeguards and security program.

b. Discuss in detail the purpose, interrelationship, responsibilities and basic requirements for the following:
   - Physical security
   - Personnel security
   - Material Control and Accountability

c. Describe the use of information security systems within Department of Energy.

d. Discuss the interrelationship between safeguards and security to safety practices.

e. Discuss the security requirements associated with the Department’s foreign visitor program.

15. An STSM shall have a working level knowledge of the Department of Energy (DOE) Directives structure and their relationship to applicable laws, rules, Federal/State Regulations and industry standards.

Supporting Knowledge and/or Skills:

a. Discuss the purpose of, and the relationship between DOE Orders, Directives, Federal regulations, and state regulations.

b. Discuss the DOE Order development and approval process.

c. Discuss the DOE rule-making process.

d. Discuss the process for obtaining an exemption to an Order, and the process for an exemption to a Rule.

e. Discuss the relationship between the DOE and Occupational Safety and Health

Administration (OSHA) and the Environmental Protection Agency (EPA).

f. Discuss the difference between a DOE Order and a Rule including enforcement and implementation differences.

g. Discuss the purpose and conditions of the Federal Facilities Compliance Act (FFCA).

h. Discuss the use of Memorandum of Understanding (MOU) and Memorandum of Agreement (MOA) with external agencies and organizations.

i. Discuss the purpose and scope of Standards/Requirements Identification Documents (S/RIDs), Work Smart Standards, and directives flowdown and their relationship to Contract List A and List B.

j. Discuss the relevance of Public Law 104-113 regarding the use of industry consensus standards.

16. An STSM shall have a working level knowledge of the Price-Anderson Amendments Act of 1988 and its impact on Department of Energy nuclear safety activities.

Supporting Knowledge and/or Skills:

a. Describe the purpose and scope of the Price-Anderson Amendments Act (PAAA).

b. Discuss the Act's applicability to the Department's nuclear safety activities, and specifically to each of the site's facilities and major activities.

c. Discuss the civil and criminal penalties imposed on the Department, contractors, and subcontractors as the result of a violation of applicable rules and regulations related to nuclear safety.

d. Discuss the requirements associated with the topics below, as they are affected by rule-making aspect of the Price-Anderson Amendments Act:
   - Procedural Rules for DOE Nuclear Activities (10 CFR 820)
   - Documented Safety Analyses (10 CFR 830 Subpart B)
   - Unreviewed Safety Questions (10 CFR 830 Subpart B)
   - Quality Assurance Requirements(10 CFR 830 Subpart A)
   - Technical Safety Requirements (10 CFR 830 Subpart B)
   - Occupational Radiation Protection (10 CFR 835)

e. Discuss the role of STSM with respect to implementing the requirements of the Price-Anderson Amendments Act.

f. Discuss the role of the site's PAAA Coordinator.

17. An STSM shall have a working level knowledge of the Defense Nuclear Facilities Safety Board's (DNFSB) charter and their interaction with the Department of Energy.

Supporting Knowledge and/or Skills:

a. Discuss the enabling legislation and the charter of the Defense Nuclear Facilities Safety Board.

b. Identify and discuss applicable Defense Nuclear Facility Safety Board Recommendations.

c. Identify and discuss Department Implementation Plans and commitments made in responses to Defense Nuclear Facilities Safety Board Recommendations.

d. Discuss the roles and responsibilities of the Departmental Representative to the Defense Nuclear Facilities Safety Board as described in DOE M 140.1-1B, Interface with the Defense Nuclear Facilities Safety Board.

e. Prepare and/or participate in a briefing to the Defense Nuclear Facilities Safety Board on the status of a Departmental activity or initiative.

18. An STSM shall have a working level knowledge of problem identification, solving, and decision making techniques.

Supporting Knowledge and/or Skills:

a. Describe and explain the application of problem analysis techniques including the following:
   - Root Cause Analysis
   - Causal Factor Analysis
   - Change Analysis
   - Barrier Analysis

b. Describe and explain the application of the following root cause analysis processes in the performance of occurrence investigations:
   - Events and causal factors charting
   - Root cause coding
   - Recommendation generation

c. Describe the elements of an effective issue management system and its importance to safety.

d. Describe the following types of accident investigations and discuss an example of the application of each:
   - Type A
   - Type B

e. Discuss the necessary considerations that must be addressed when developing a corrective action.

f. Discuss the immediate, short-term, and long-term actions taken as the result of problem identification or an occurrence.

g. Given the data for an event, determine the root cause and develop corrective actions. Compare the results with that of the originator. Discuss any differences.

19. An STSM shall have a working level knowledge of technical contract management to assess contractor performance.

Supporting Knowledge and/or Skills:

a. Identify the three major DOE contract types and describe the characteristics, and the advantages and disadvantages of each.
b. Identify and discuss the types of contracting processes that are used to put major contracts in place.

c. Discuss the following terms as they apply to financial accountability for the contractor:
   - Incentives
   - Fines and Penalties
   - Third-Party Liabilities
   - Loss of, or damage to Government property
   - Allowable and Non-Allowable Costs

d. Discuss the technical oversight and qualifications required to assess contractor performance and the training of contractor employees.

e. Discuss the fee-based evaluation process including the development of performance criteria, conduct of the evaluation, and documentation and transmittal requirements for performance.
f. Identify who can make contractual requests or approvals of contract provisions, and the qualifications required of that individual(s).

g. Discuss the intent of the revised Department of Energy Acquisition Regulations (DEAR) Clause, 970.5223-1, regarding safety and the impact of contract reform on safety.

20. An STSM shall demonstrate the ability to effectively manage programs and projects utilizing the processes and procedures necessary to ensure the safety of departmental activities.

Supporting Knowledge and/or Skills:

a. Describe the typical documents and data sources utilized in program management.

b. Define the following terms:
   - Baseline
   - Graded approach
   - Infrastructure
   - Life-Cycle
   - Programmatic management
   - Metrics and performance measures

c. Describe the key elements of supervising/monitoring program activities and contractors.

d. Describe the purpose of schedules, and discuss the use of milestones and activities.

e. Define and compare the terms cost estimate and budget.

f. Describe the process for preparing cost estimates and budgets.

g. Define and explain the relationship between following terms:

- Budgeted Cost of Work Scheduled (BCWS)
- Budgeted Cost of Work Performed (BCWP)
- Actual Cost of Work Performed (ACWP)

h. Discuss how priorities should be balanced to achieve the following:
   - Resources are effectively allocated to address safety, programmatic, and operational considerations.
   - Protecting the public, the workers, and the environment is a priority whenever activities are planned and performed.

i. Discuss the requirements to procure external products and services for DOE projects.

j. Describe the methods for procuring DOE or other government products and services.

k. Explain what is meant by “Make-or-Buy” in procuring products or services.

l. Discuss the Davis-Bacon Act as it relates to DOE financial management issues.

21. An STSM shall demonstrate the ability to conduct investigations and assessments, develop recommendations for corrective actions, communicate results, and develop supporting reports/documentation.

Supporting Knowledge and/or Skills:

a. Describe the assessment requirements and limitations associated with the interface with contractor employees.

b. Explain the essential elements and processes associated with the following assessment activities including:
   - Investigation
   - Fact Finding
   - Reporting
   - Tracking to Closure
   - Follow up
   - Corrective Action Implementation.

c. Describe the actions to be taken if the contractor challenges the assessment findings and explain how such challenges can be avoided.

d. Lead a team to conduct compliance-based and performance-based assessments. Identify the differences in outcomes and the reasons for these differences.

e. Write, or review and approve, an assessment report.

f. Based on an evaluation of contractor activities, review and approve corrective actions and recommendations, and communicate the results to contractor management.

g. Participate in formal meetings between Department management and assessed organizations management to discuss the results of the assessments.

22. An STSM shall demonstrate the ability to trend and analyze safety-related performance data.

Supporting Knowledge and/or Skills:

a. Discuss the key processes used in the trending and analysis of operations information.

b. Discuss the key process to develop and implement metrics and performance measures, validate performance against metrics and performance measures, and trend/analyze data to establish a continuous improvement program.

c. Discuss the importance and key elements of the following:
   - Maintenance history
   - Operational incident/occurrence report data
   - Security infractions
   - Safety incidents
   - Radiation exposure and incident reporting
   - Schedule variances
   - Counterfeit and suspect parts

d. Using DOE O 232.1A, Occurrence Reporting and Processing of Operations Information, discuss the role of an STSM related to reportable occurrences.

e. Discuss the Department's policy regarding the reporting of occurrences as outlined in DOE O 232.1A.

f. Given an occurrence report, determine whether:
   - Review process is adequate
   - Causes are appropriately defined
   - Corrective actions address causes
   - Lessons learned are appropriate
   - Corrective actions are completed

g. Given DOE O 210.1, Performance Indicators and Analysis of Operations Information, discuss the key elements of the Order and how they are applied.

h. Given incident/occurrence report data for a specified period, analyze the information for contributing factors and safety trends.

23. An STSM shall have a working level knowledge of quality assurance policies, programs, and processes.

Supporting Knowledge and/or Skills:

a. Describe the general requirements, purpose, interrelationships and importance of DOE O 414.1A and 10 CFR 830.120, Quality Assurance.

b. Describe the Department of Energy's and the management and operating contractor's responsibilities and requirements for implementing a Quality Assurance Program (QAP).

c. Discuss the role of STSMs with respect to DOE O 414.1A and 10 CFR 830.120.

d. Describe the quality assurance criteria of DOE O 414.1A which address the following:
   - Management
   - Performance
   - Assessment

e. Referring to DOE G 414.1-2, Quality Assurance Management System Guide for use with 10 CFR 830.120 and DOE O 414.1, discuss the implementation of an effective Quality Assurance Program (QAP).

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APPENDIX A
CONTINUING EDUCATION, TRAINING AND PROFICIENCY PROGRAM

The following list represents suggested continuing education, training and other opportunities that are available for STSMs after completion of the competency requirements in this technical Functional Area Qualification Standard. It is extremely important that STSMs maintain their proficiency through continuing education, training, reading, or other activities such as workshops, seminars, and conferences. The list of suggested activities was developed by the Subject Matter Experts involved in the development of the Functional Area Qualification Standard and is not all-inclusive.

Based on the knowledge and experience of the Subject Matter Experts, it is suggested that the following activities support the maintenance of proficiency in the STSM functional area after completion of the competencies in the Standard and other requirements of the TQP.

LIST OF CONTINUING EDUCATION, TRAINING AND OTHER ACTIVITIES

1. Federal Executive Institute
2. Executive Leadership Forum
3. Management Development Seminar
4. Media Skills for Executives
5. ISM Seminars or Training Activities
6. EEO and Diversity Training
7. Federal Appropriations Law/Updates
8. Employee Performance and Conduct

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CONCLUDING MATERIAL

Review Activity:
EM
DP-NNSA
EH
NE
SC

Preparing Activity:
DOE-ORO

Project Number:
TRNG-0034

Field and Operations Offices
AL
CBFO
CH
ID
NV
OAK
OH
OR
ORP
RF
RL
SR

Area and Site Offices
Amarillo Site Office
Argonne Area Office
Brookhaven Area Office
Fermi Area Office
Kansas City Site Office
Kirtland Site Office
Los Alamos Site Office
Princeton Area Office
Y-12 Site Office
Savannah River Site Office